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ABSTRACT

This report presents information on a cooperative agricultural education program conducted between the Kern Community College District and the Kern High School District which was designed to improve agricultural education and respond to the needs of local agricultural employers. Introductory material presents a history of relations between the Kern high school and community college districts; and outlines the role of the Advisory Committee which was set up to make recommendations regarding development of an agricultural instructional program articulated from high school through community college. Next, results are provided of a survey designed to determine the personnel needs of various segments of agriculture in Kern County and to provide appropriate training to meet those needs. Results of the survey of 48 firms are then summarized and include the perception that the most pressing needs in local agriculture were for agricultural mechanics, agricultural production workers, and personnel to work in agribusiness. After a discussion of cooperative efforts between the two districts, the plan for future cooperation - based on the two-plus-two concept which was designed to facilitate student progress through high school and community college courses - is presented. The following section presents the agricultural curriculum in the high school and community college districts including current and proposed programs, and the general education component. Finally, information on the students, facilities and costs, and evaluation/modification procedures are highlighted. Appendices include a list of advisory committee members, the articulation agreement, and the survey instrument and results. (HB)

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AND

KERN HIGH SCHOOL DISTRICT

THE TWO-PLUS-TWO AGRICULTURE PROGRAM IN KERN COUNTY

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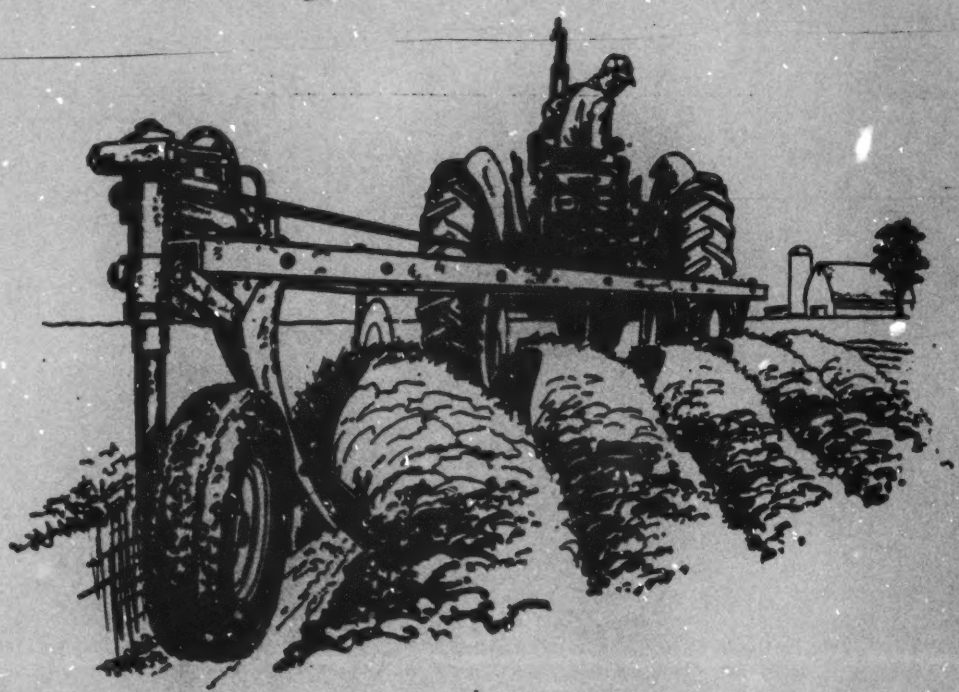

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THE TWO-PLUS-TWO AGRICULTURE PROGRAM
IN
KERN COUNTY

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The cooperative nature of this Two-Plus-Two Project is reflected in the list of people who made valuable contributions to the effort. Their names and positions follow:

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TABLE OF CONTENTS

	PAGE
INTRODUCTION	1
GENERAL	1
HISTORY	1 - 2
ADVISORY COMMITTEE	3
THE SURVEY	3
SURVEY SUMMARY	4 - 5
A COOPERATIVE EFFORT	6 - 7
THE PLAN	7
TWO-PLUS-TWO CONCEPT	7 - 8
ORGANIZATIONAL MODEL	8 -10
THE CURRICULUM	11
CURRENT PROGRAMS	11-12
PROPOSED PROGRAMS	12-17
GENERAL EDUCATION COMPONENT	17-18
WHO ARE THE STUDENTS?	18-19
FACILITIES AND COST	20
EVALUATION/MODIFICATION	20
A FINAL NOTE	21
APPENDIX	22-47

INTRODUCTION

GENERAL

For decades lip service has been paid to articulation of educational programs among the various levels of training. Everyone favors a smooth transition from segment-to-segment. We all favor the elimination of unnecessary repetition of courses or fruitless duplication. Coordination of curricular programs among levels is a long-stated, but infrequently realized goal. Educators say they are committed to cooperative efforts, but in practice the instances of this cooperation are rare, indeed. Administrators, and thus institutions, pursue goals that enhance their own self interests.

The net result of this compartmentalization of education is wasted effort, wasted time, wasted resources; and an uneven, not to say jerky, progression of students through the maze, over the barriers, and, hopefully, through the system. If "survival of the fittest" is the over-riding goal, this process would get high marks. If effective preparation of young people to enter the work force is the goal, the system is markedly inefficient.

At a time when society cries out for reform in education, one relatively easy step to take would be to become more cooperative and less parochial. In the huge and rather amorphous realm of vocational education this step would prove to be immensely beneficial. Vocational education in secondary schools necessarily tends to be introductory. In combination with postsecondary education training could be more comprehensive, more demanding, and more open-ended, i.e., providing opportunities to enter the work force at various levels.

To get started with such a "revolutionary" effort, educators would have to bring to the discussions a sincere willingness to create a system without artificial barriers which would transcend selfish interests. This approach is easy to conceptualize, but is infrequently put into practice because administrators at the different levels don't talk to one another, can't conceive of putting up more than 50% of the money, and are unwilling to be guided by what is best for students.

So—the history of cooperative educational ventures fills a very slim volume. The prevailing attitudes militate against coordination; the state does not reward such attempts; and faculties, students, and parents have a hard time understanding anything that deviates from traditional practices. Why then would the Kern High School District and the Kern Community College District be experimenting with a cooperative project in agriculture education? This paper sets out to describe the conditions and ingredients that yield some optimism with respect to the results of the combined and cooperative efforts of the two districts, one secondary and the other postsecondary.

HISTORY

Schools and colleges do not exist in a vacuum. They are part of the total society, and are affected by forces that impact on that society. Among these forces, of course, are economic factors that affect the mission, support, and functioning of educational institutions, including those of the Kern High School District and the Kern Community College District. These districts serve most of Kern County, reflecting in their respective curriculums, to some degree, the need for trained personnel in the major areas of business and industry.

Kern County is one of the top three productive agriculture counties in the United States; it is the leading petroleum producing county in this country; and its four largest employers are agriculture, government, retail trade, and services. In 1983 agriculture employed 32,800 people out of a total work force of 176,800. This is an 18.5% share of those earning wages and salaries. The gross value of the agriculture enterprises in the county has grown from $180,000,000 in 1950 to $1,200,000,000 in 1981, a six-fold increase in 30 years. During this time mechanization has steadily displaced animals and manpower, and more recently we see the use of computers for, and the application of, the principles of cybernetics to the growing, harvesting and marketing of agriculture products. The need for technically trained personnel in agriculture is intensified by this movement toward mechanization and automation. In a Survey conducted by Bakersfield College and the Kern High School District in April, 1982, it was determined that large agriculture enterprises in Kern County were most in need of trained people in agriculture mechanics and in the application of computer science to production and marketing in agriculture. Other needs expressed in this Survey related to training in the use of chemical fertilizers, insecticides and soils analysis. The 48 firms responding were saying in effect that educational institutions in Kern County, both secondary and postsecondary, should design training programs that reflect the changing needs of the agriculture industry. As these firms looked at high school and community college offerings they noted a significant discrepancy between what is taught and the skills needed in the field. Further, they were very outspoken about the lack of communication between educational institutions and the agriculture enterprises of the county. Later in this paper more detailed references will be made to this Survey. For purposes of introduction, however, it is fair to say that the agriculture industry wants more from educational institutions and is willing to help plan curricular offerings that are consonant with needs in the field.

For many years both the High School and College Districts have had agriculture programs. The High School District, in particular, operated a large enterprise which included a school farm. Bakersfield College, since 1956 when it moved to its present campus, has offered a strong baccalaureate level curriculum in agriculture, but only a sprinkling of courses designed to train people for more immediate employment. The two Districts have kept in close touch with respect to articulation, but they have not combined forces to supplement and enhance each other's offerings. The High School has emphasized agriculture projects and FFA activities, and the College, with no facilities for agriculture mechanics or hands-on crop and animal production, has emphasized courses for transfer to Fresno State, Cal Poly and U.C. Davis. The agriculture industry viewing these developments has been dissatisfied, feels isolated from the two educational agencies, and has expressed its willingness to become a more active partner.

In 1982, administrators and faculty of the two Districts began to explore avenues that would lead to a jointly operated Agriculture Center which would provide the High School District with a larger and improved school farm, and give Bakersfield College an opportunity to train students in agriculture mechanics as well as the possibility of hands-on experience in animal and crop production. Contacts were made with the agriculture industry, an advisory committee was formed and a joint presentation was made to this committee outlining the current status of agriculture education in Kern County, and calling attention to the need for a jointly operated Agriculture Center and the support of industry to establish and operate such a Center. The net result of this meeting was that industry representatives recommended a survey to determine the needs for trained personnel in the various segments of agriculture in Kern County.

ADVISORY COMMITTEE[1]

In September, 1981, the Boards of Trustees of the Kern High School District and the Kern Community College District passed a Joint Resolution[2] authorizing the formation of an Advisory Committee to make recommendations to the two districts with respect to the development of an agriculture instructional program that would be articulated from high school through the community college level. This unusual step in the direction of combining resources to further educational and industry goals in agriculture had the unanimous support of both Boards, and the enthusiastic endorsement of the chief executive officers of both districts. It is important to note at this point that the two chief administrators were and are willing to lay aside parochial interests and recommend joint action that could greatly enhance agriculture education in the county. Also, implicit in this unique cooperative venture is the hope that a model of articulation and joint efforts will be developed that would be applicable to other areas such as business, health careers, computer science, and industrial education.

In addition to agriculture faculty representatives from the two districts, the Advisory Committee was composed of representatives from twelve of the largest agriculture employers in Kern County. These enterprises are active in field crops, animal production, dairy business, irrigation, fertilizers, pesticides, farm machinery, flower production, and landscape architecture. They span the spectrum of agriculture related businesses in Kern County and the representatives from each firm have significant management responsibilities.

The Committee had its initial meeting in December, 1981, at which time the respective high school and college staffs presented a status report regarding agriculture education and a proposed plan for a jointly operated Agriculture Center where both high school and college classes would be offered. The discussion which followed focused on the needs of the agriculture industry which clearly emphasized the necessity for trained personnel in agriculture mechanics and computer applications. After a rather wide-ranging discussion, the Committee recommended a comprehensive survey of agriculture employers to determine personnel needs and recommended training programs to meet those needs. The two districts agreed to conduct such a survey.

THE SURVEY

The Survey was conducted during the spring of 1982 with 48 firms[3] participating. It can be seen from a brief review of the participants that almost all segments of agriculture in Kern County were represented in the Survey. Questions for the Survey were developed by the two faculties, field tested with a sampling of employers, and then used in personal interviews with appropriate personnel at each of the 48 firms. The interviews were conducted by high school and college faculty members and respondents were given an opportunity, not only to respond to the specific questions, but to volunteer perceptions of their own. The Survey instrument can be found in Appendix D, pages 25-29, and the summary of responses in Appendix E, pages 30-45. The Survey instrument was carefully developed; the interviewers were all professionally trained agriculture teachers with impressive teaching and agriculture experience; and those interviewed were competent to respond to the questions being posed. It is, therefore, assumed that the conclusions drawn from the Survey are valid and that they will be useful in guiding the two districts as curricular plans are made and a more coordinated effort is implemented.

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(1) See Appendix A, p. 22 (2) See Appendix B, p. 23 (3) See Appendix C, p. 24

SURVEY SUMMARY

What do employers in agriculture related enterprises expect the high schools and the local community college to offer to properly train prospective agriculture employees in the various skills and levels needed?

According to those surveyed the most pressing need in local agriculture is for trained personnel in the broad field of agriculture mechanics. This includes training in gasoline and diesel powered equipment, equipment operation, welding, and maintenance and service. Since neither the high schools nor Bakersfield College have comprehensive training programs in agriculture mechanics, this need is not being met by local educational institutions. For some years, first under CETA and now under JTPA, Bakersfield College has operated a very effective agriculture mechanics program. However, this program is open only to specially selected trainees who qualify under the terms of JTPA. The net result is that in most instances local employers have to provide on-the-job training for their own employees with respect to agricultures mechanics.

An encouraging aspect related to training personnel in agriculture mechanics is that employers themselves are emphatic in their statements of need, and further, have expressed willingness to cooperate in a substantive way in the development and presentation of curriculums in agriculture mechanics. It is a well known fact that the equipment needed to properly train people in agriculture mechanics is expensive, changes fairly rapidly, and in the main, is beyond the resources of educational institutions to provide. The private sector could be of enormous help in this regard, and it is heartening to know that local agriculture firms have expressed their willingness to be of assistance.

Second in the judgment of employers for greater emphasis in the training of agriculture personnel is the need for hands-on practical experience in agriculture production. This need was suggested by 40% of the respondents. Agriculture production spans a broad spectrum which includes experience with row crops, irrigation, horticulture, viticulture, pesticides, fertilizers, and dairy farming.

As with agriculture mechanics, training in agriculture production can not be properly offered at either the college or high school level without specialized facilities including acreage. Bakersfield College has been seriously handicapped in this regard since the only agriculture facilities are those on the campus itself and these are limited. The High School District at one time had substantial acreage, a large program in agriculture production, and the specialized facilities needed for comprehensive training in production. More recently, the High School farm has shrunk to 13 acres and the emphasis has been on livestock projects. The College tried to supplement its facilities for training in production by providing extensive hands-on experience with ornamental horticulture, and a more limited experience in orchard production. There have been very limited practical opportunities in viticulture at either the high school or college level. This lack of opportunity is made crucial by the enormous acreage in Kern County given over to the growing, harvesting, and processing of grapes.

The third area singled out by employers where there is a shortage in trained personnel is in agri-business. This includes management, supervision and computer skills and was mentioned as a need by 31% of employers. Fortunately, for the training of management and supervision personnel, specialized facilities are not needed. Further, Bakersfield College has begun to move into this field of training, and will probably do much more in the future. At the high school level the maturity of students and their general background probably preclude extensive training in management and supervision. However, all agriculture students of the future will need training in computer science and this was strongly recommended by employers participating in the Survey. Training in computer science can and should start at an early level. It is obvious that for this training specialized facilities are needed. Access to computer main frames and related software is required. Fortunately, Bakersfield College has a highly developed computer science program that is already operative in many disciplines including agriculture and management. It will, in the future, through cooperative planning, be possible to provide the necessary training in computer science for agriculture application at both high school and college levels.

Of the three major needs identified by the agriculture employers represented in the Survey, the first two, i.e., agriculture mechanics and agriculture production require more extensive facilities, equipment, and acreage than now exists at either the high schools or Bakersfield College. To meet the needs of Kern County agriculture firms for trained personnel in these areas, the schools will have to improve facilities, add state-of-the-art equipment, and upgrade the professional staff to get the job done. In agri-business, including computer science, Bakersfield College can probably meet the need by extending its training opportunities to high school students, and by developing more comprehensive and sophisticated opportunities for college students. This will require, in the area of computer science the addition of greater capabilities at the main frame and through the addition of terminal outlets.

Touched on over-and-over again by agriculture employers participating in the Survey was the importance of basic skills. They want their employees to be skilled readers, writers, and computers. And they want more. They want their employees to be generally educated. Practical hands-on knowledge is frequently mentioned and so are basic skills which mainly are subsumed under the Three R's. But many employers are interested in hiring personnel who, in addition to these foundation skills, understand something about themselves, other people, the world we live in, and have an interest in the arts, history, literature, and science. It is probably true that practical and basic skills come first with employers. But, they are also interested in general education and the humanities, and they do not see the specific and the general to be mutually exclusive. From the Survey it became plain that agriculture employers want skilled personnel who have the background to grow on the job. They want demanding programs of training that prepare people for entry level jobs in agriculture, but also help get some of them ready for professional level jobs including management. It is very heartening and encouraging to read the comments of employers and to realize how fruitful it would be to develop a partnership of agricultural and educational enterprises.

A COOPERATIVE EFFORT

Not often, but occassionally, the right ingredients are present for joint action on the part of two or more educational institutions. Usually these efforts go under the banner of a consortium or are limited to articulation agreements. Rarely do we find a combined effort where material and personnel resources are pooled, and where students from different institutions and at different levels are enrolled in a single program.

The history of agriculture education in Kern County sets the stage for this combined effort. Bakersfield College at one time was a member school of the Kern Joint High School and Junior College District. The college was located on the campus of Bakersfield High School and facilities, faculties, and resources were shared. The School Farm provided educational experiences for both high school and college students. Administrators at the two levels worked for the same chief executive officer, and a single Board of Trustees determined policies and procedures.

By 1968 the two levels, i.e., high school and community college, were legally separated, operated at different sites, were administered as different entities and controlled by their respective boards of trustees. However, faculty and administrators at the two levels were well acquainted, accustomed to working with each other, and convinced of the usefulness of effective articulation. Through the 70's there was a healthy level of cooperation, but no efforts were made for a fundamental combined effort.

Early in the 1980's with changes in leadership at the two districts and at the faculty level conversations began to take place regarding some kind of joint effort in agriculture education. Impetus for this came from the long-standing agitation at Bakersfield College for a school farm, the cramped quarters of the high school farm, and the often voiced complaint from agricultural enterprises that the educational program at the two levels should be more effectively integrated.

These voices expressing needs had been raised off-and-on down through the years, but at the leadership level there were always items with a higher priority that preempted serious consideration of a joint effort. In 1981-82, however, personnel at the high schools, at the college, and at the two districts began to talk of a jointly operated agriculture center with substantial acreage where courses at both levels could be offered and where there would conceivably be a mix of high school and college students in the same classes. These discussions started at the faculty level. The fact that most of the college faculty had formerly been on the high school staff, knew each other, and had developed a high level of mutual trust led to their moving the concept of cooperation to the administrative level. The President of the College, and the two district chief executive officers had a long-standing professional relationship and a history of working together cooperatively. Likewise, the two boards of trustees, having once been a single board, had developed through the years a high level of mutual respect and trust. So—the climate was favorable for joint action. Any one of these entities or participants could have thrown cold water on the proposal, thus succeeding in blocking it. But each had a vested interest in improving agriculture education and neither district seemed to be able to do this without the help of the other. A symbiotic relationship had developed; the time was ripe; and the conditions were favorable.

Furthermore, agricultural enterprises were getting a little more insistent that they have a voice and that their needs for trained personnnel be met. The Survey had provided the necessary data from the field and the stage was set to design and put into operation the long dream of a high school-college joint agriculture program.

THE PLAN

TWO-PLUS-TWO CONCEPT

The two-plus-two concept sounds simple enough but it is complex, and in actual practice it is a rarity. What is meant by "two-plus-two" in a given program would be to first arrange the courses in this particular curriculum so that student progress through the four-year program would be facilitated. The second step would be to organize the curriculum so that high school juniors and seniors who have the course prerequisites could concurrently enroll in college classes. The third step would be to organize the curriculum so that students at both levels, i.e., high school and college could qualify for certificates of proficiency along the way. And the fourth component of two-plus-two would be an effective assessment/counseling system that would encourage high school students to consider the program and become qualified for participation in it. This fourth component of the program would also be geared to assist students in finding either employment or making decisions regarding transferring to a four-year college or university, whichever turns out to be a combination of their competency levels and their preferences.

Supplementary features of the Two-Plus-Two concept:

- A four-year emphasis on communication skills
- A four-year emphasis on mathematics and problem solving
- A greater depth of training in technical skills
- Work experience opportunities as a result of job entry level proficiencies
- An integrated introduction to the humanities and general education
- An earlier exposure of students to career opportunities

The desired results for those completing the four-year program would be the awarding of an Associate of Science Degree that is recognized by employers as requisite for a specific field of employment in agriculture.

With the best of intentions on the part of the high schools and the community college, this cooperative model is still plagued by some difficulties that must be overcome, or at least ameliorated. To begin with, high school students are expected to put in a minimal day on the high school campus thus yielding one ADA for the high school district. This is a financial reality which conceivably could be changed, but only with new legislation. It is within the capabilities of the two levels to arrange programs that still meet the minimal day requirement, but this necessity has to be taken into account. In some instances students will be concurrently enrolled in high school classes, the regional occupational program, and college level courses.

A second difficulty, in most instances, would be the transportation of high school students to a location other than the high school campus. This might mean moving them to a community college campus or to a center of some kind. It is very unlikely that an entire two-plus-two program could be carried on at a high school campus. It is also a possibility that community college students would have to transport themselves to a center that might be somewhat removed from the college campus. Transportation, then, is a problem both with respect to time and to cost.

Another major consideration requiring careful planning and commitment of resources would be the assessment, screening, and placement of high school students in the program. Not every high school junior or senior is mature enough and properly prepared academically for college level work. In addition to comprehensive testing, there would have to be established a ladder of prerequisites to help insure that high school students have a reasonable chance to succeed. An important component of this concern would be in the areas commonly subsumed under basic skills, i.e., reading, writing, and arithmetic. Students have to be able to read the textbook, respond in writing, and compute at least at the basic level. Testing will probably reveal deficiencies, but remedy awaits intensive effort on the part of institutions and students.

The two-plus-two concept can be written down, as we are trying to do here, and the difficulties can be anticipated, but the success or failure of the program will still depend in large measure on the spirit of cooperation that, hopefully, will exist. Parochialism has to be set aside. Long range goals have to be kept in focus, and communication has be to frequent, open, and characterized by mutual trust. The two-plus-two concept hasn't been tried very often. Most institutions shy away from it because it is difficult and filled with tension. The results of such a combined effort could be very rewarding for students—and thus worthy of our best efforts.

ORGANIZATIONAL MODEL

With the help of the Advisory Committee, the Kern High School District and the Kern Community College District have agreed on a two-plus-two organizational model in agriculture education. This plan hinges on the development of an 80-acre site, centrally located, which will provide instructional space for row crops, pasture crops, livestock, agriculture mechanics, and laboratory space for courses in soils, crop science, and entomology. The site has been acquired, educational specifications have been developed, and the facilities are in the working drawing phase leading to coming on line for the fall semester, 1985. Appendix F, pages 46-47, shows the plot plan for the new center which will be a combination Regional Occupational and Agriculture Center.

As can be seen from Appendix F the Regional Occupational Program (ROP) to be housed in the new Center occupies most of the building space. Labs and shops for auto technology, auto body, diesel engines, welding, carpentry, printing and photo, appliance and office machine repair, business and health careers are provided in addition to agriculture facilities to be described in detail later in this document. Space is also provided for ROP administration, and of course, conventional classrooms.

The ROP is an on-going program that has been in existence for fourteen years. It has a history of serving a broad spectrum of high school juniors and seniors, providing intensive job entry training in a variety of occupations. These students have expressed an interest in more "hands on training", and after putting in a minimal day on their respective high school campuses enrolled in general education subjects, they spend two or three hours daily in ROP classes which are vocational in nature.

The local ROP program is administered by the Kern High School District through the auspices of the County Superintendent of Schools Office. The students enrolled generate two ADA under the laws of California, one ADA for the respective high school and one ADA for ROP. According to the ROP Principal, the students enrolling in ROP span the spectrum of abilities and interests. In his judgment, however, only a small proportion of the 900 ROP students would be qualified for college level classes. ROP students are recruited from the high schools, transportation to the Center is provided, and the track record of retention and achievement is good. The two-plus-two agriculture program would represent a departure from present practice, but it can be seen that a cadre of 11th and 12th graders are already present at the ROP, thus providing a pool of students from which to draw as college classes are introduced into the existing program.

The organizational model would call for the offering of college level courses at the ROP/Agriculture Center enrolling both college and high school students. The high school students, through a system of assessment and counseling, would be selected from the ROP student body for the two-plus-two agriculture program. The college students would enroll after assessment and counseling at Bakersfield College. The college courses offered initially at the Agriculture Center would be agriculture mechanics, soil science, crop science, and entomology. These would be regular college classes providing credits for either graduation with an Associate of Science degree, transfer to a four-year college or university, or both. The agriculture courses offered under the aegis of Bakersfield College would come under the specific supervision of the Agriculture Department and the general supervision of the College.

For purposes of integrating these college courses into the ROP and the Agriculture Center, the High School District will provide over-all site administration through the Director of ROP, and specific agriculture program coordination through the Coordinator of the Two-Plus-Two Program. Bakersfield College will provide one of its instructors as an assistant to this Coordinator. The two Coordinators will be advised by a committee consisting of agriculture faculty from Bakersfield College and the participating high schools. The industry based Advisory Committee will also assist with suggestions for curriculum, by providing equipment and materials of instruction, and through the employment of students certified by the Center. It will be incumbent upon the Coordinators and the faculty committee to keep the Advisory Committee fully apprised of plans, problems, and progress. On-going evaluation of this new effort to provide integrated training of high school and college students is a necessity. The professional staff involved and the industry-based Advisory Committee will play important roles as the program unfolds and results can be assessed.

The following organizational schematic illustrates the various components and relationships of the Two-Plus-Two Agriculture Program:

KERN HIGH SCHOOL DISTRICT AND
KERN COMMUNITY COLLEGE DISTRICT

ORGANIZATIONAL MODEL
TWO-PLUS-TWO AGRICULTURE PROGRAM

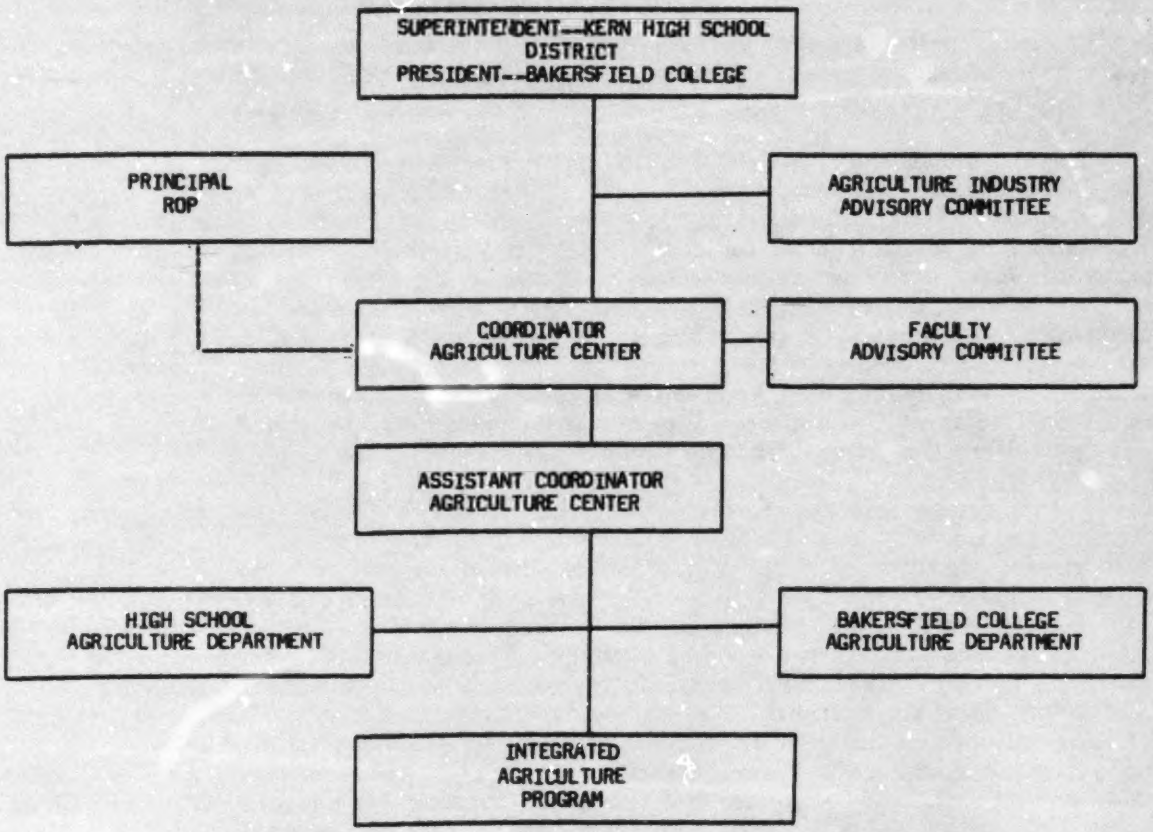

Figure 1--An organizational model of the joint agriculture program

THE CURRICULUM

CURRENT PROGRAMS

There are existing on-going agriculture programs offered by eight of the Kern High School District high schools and Bakersfield College. At the high schools the courses offered are as follows:

Animal Science
Plant Science
Ornamental Horticulture
Agriculture Business
Agriculture Mechanics

The Animal Science courses at the high schools are supplemented with an opportunity for students to develop an animal project in lieu of laboratory experience. The Plant Science program noted above is limited to lecture courses. The other programs, such as Ornamental Horticulture, Agriculture Business and Agriculture Mechanics are a combination of lecture/laboratory offerings.

At Bakersfield College the agriculture majors currently being offered are as follows:

Animal Husbandry
Crop Science
Soils
Ornamental Horticulture
Forestry
Agri-business/Computer Science

The courses subsumed under the programs noted above all provide lecture and laboratory experience except Foresty which is strictly a lecture course. However, it should be noted that with respect to Animal Husbandry and Crop Science the laboratory facilities, and thus offerings, are very limited. No animals are kept and crop production laboratory experience is limited to the few acres on campus allocated for this purpose. In Soils, Ornamental Horticulture and Agri-Business the laboratory facilities range from adequate to outstanding.

In addition, Bakersfield College offers some courses in agriculture mechanics, and a rather wide selection of agriculture related courses to meet the more immediate needs of people already employed in the industry. It is pertinent to this description of the two-plus-two agriculture program to reiterate at this point that although the agriculture industry cites training in agriculture mechanics as its foremost need, neither the high schools nor the college have comprehensive training program in this field. One major aim of the two-plus-two program is to provide an appropriate facility, properly staffed, for offering an agriculture mechanics training program that could begin in the 11th grade and continue for four years culminating in a technical degree or certificate.

In addition to these two major providers, i.e., the high schools and Bakersfield College, there are some agriculture courses provided under the aegis of ROP. These follow:

Agriculture Sales and Service
Landscape Maintenance
Agriculture Equipment Operation

To date, these courses have been offered at the high schools and not at the ROP Center.

PROPOSED PROGRAMS

The high schools and Bakersfield College will continue with their current agriculture programs. The high schools, instead of having the 13-acre School Farm with facilities mainly for animals, will now have access to the agriculture facilities on the 80-acre site that houses the ROP/Agriculture Center. Space and facilities will be available for livestock, pastures, crop production, and heavy equipment operation. The College will continue with its regular programs on the Bakersfield College campus, and will have the advantage of using some of the new facilities at the Center.

With respect to the Two-Plus-Two Agriculture Program four curriculums culminating with an Associate of Science Degree will be offered. These are as follows:

Agriculture Business
Crop Science
Mechanized Agriculture
Ornamental Horticulture

On the succeeding four pages there follows a course-by-course schedule for each of the programs noted above. These schedules indicate the course, the site where offered, the college units earned, the diploma, certificate or degree awarded and a list of suggested electives. This new curriculum design is more than simply pouring "old wine into new bottles" with greater emphasis on basic skills/problem solving, and with more intensive technical training. It is a new, integrated approach whose goal is to prepare students to take their places in the agriculture industry in this century and beyond.

KERN HIGH SCHOOL DISTRICT AND BAKERSFIELD COLLEGE
AGRICULTURE BUSINESS

GRADE 11 FALL		GRADE 12 FALL		GRADE 13 FALL		GRADE 14 FALL	
COURSES	SITE	COURSES	SITE	COURSES	SITE	COURSES	SITE
American History	HS	American Government	HS	English-Composition (3)	BC	*English-Technical Writing (3)	BC
English	HS	English	HS	Humanities (3)	BC	Behaviorial Science (3)	BC
Mathematics	HS	Conversational Spanish	HS	Ag. Bus. 5--Ag. Computers (3)	BC/C	Physical Fitness	BC
Physical Science or Chemistry	HS	P.E. or Elective	HS	Acctg. 53A Intro. to Accounting (3)	BC	Ag. Bus. 7--Calif. Agriculture Law	BC
Typing/Computer Intro.	ROP	Technical Math (3)	C	Elective (3)	BC/C	Elective (3)	BC/C
Ag. Bus.1--Intro. to Cal. Ag. (3)	BC/C	Ag. Bus. 3--Ag. Mkt. & Econ. (3)	BC/C				

GRADE 11 SPRING		GRADE 12 SPRING		GRADE 13 SPRING		GRADE 14 SPRING	
COURSES	SITE	COURSES	SITE	COURSES	SITE	COURSES	SITE
American History	HS	American Government	HS	English-Speech (3)	BC	Humanities (3)	BC
English	HS	English	HS	Ag. Bus. 6--Ag. Labor Relations (3)	BC	Fine Arts (3)	BC
Mathematics	HS	Conversational Spanish	HS	Physical Fitness (1)	BC	Mgnt. 59 Personnel Management (3)	BC
Physical Science or Chemistry	HS	P.E. or Elective	HS	Acctg. 53B (3) to Accounting	BC	Elective (3)	BC
Typing/Computer	ROP	Technical Math (3)	C	Elective (3)	BC/C	Elective (3)	BC
Ag. Bus. 2--Ag. Bus. Management (3)	BC/C	Ag. Bus. 4--Ag. Acctg. & Farm Mngt. (3)	BC/C				

CERTIFICATE OF COMPETENCY IN TYPING	HIGH SCHOOL DIPLOMA AND/OR CERTIFICATE OF COMPETENCY IN AGRICULTURE	CERTIFICATE OF COMPETENCY IN THE USE OF COMPUTERS IN AGRICULTURE	ASSOCIATE OF SCIENCE DEGREE IN AGRICULTURE BUSINESS

DIPLOMA/CERTIFICATE/DEGREE

WHERE COURSES WILL BE TAUGHT (SITE):

AGRICULTURE CENTER -- C
BAKERSFIELD COLLEGE -- BC
HIGH SCHOOL CAMPUS -- HS
REGIONAL OCCUPATIONAL PROGRAM -- ROP

NO. OF COLLEGE UNITS INDICATED IN:

( )

SUGGESTED ELECTIVES

AN. S. 1 -- INTRO. TO ANIMAL HUSBANDRY	CRP.S. 4 -- ADVANCED TREES & VINES	BUS. A. 1A -- PRINCIPLES OF ACCOUNTING (3)
AN. S. 2 -- BEEF PRODUCTION	MECH. AG. 1 -- INTRO. AGRIC. MECH.	BUS. A. 1B -- PRINCIPLES OF ACCOUNTING (3)
AN. S. 3 -- SHEEP PRODUCTION	MECH. AG. 2 - AG. EQUIPMENT SER. & OPER.	ACCTG. 54 -- PAYROLL ACCOUNTING (3)
CRP.S.1 -- PRINCIPLES CROP PRODUCTION	ORNMENTAL HORTICULTURE 2 -- NURSERY MNGNT.	ACCTG. 3 -- TAX ACCOUNTING
CRP.S. 2 -- ALFALFA & FOR. CROPS	ORNMENTAL HORTICULTURE 3 -- PLANT I. D.	BUS. A. 18A -- BUSINESS LAW (3)
CRP.S. 3 -- TREES & VINES	ORN. HORT. 4 - PLANT IDENTIFICATION	INSUR. 21 -- PRINCIPLES OF INSURANCE (3)

* Courses to be designed

KERN HIGH SCHOOL DISTRICT AND BAKERSFIELD COLLEGE
CROP SCIENCE

GRADE 11 FALL

COURSES	SITE
American History	HS
English	HS
Mathematics	HS
Physical Science or Chemistry	HS
Typing/Computer Intro.	ROP
Ag. Bus. 1--Intro. to Cal. Ag. (3)	C

GRADE 12 FALL

COURSES	SITE
American Government	HS
English	HS
Conversational Spanish	HS
P.E. or Elective	HS
Technical Math (3)	C
Crop.S. 1--Prin. of Crop Production (3)	C

GRADE 13 FALL

COURSES	SITE
English-Composition	BC
Humanities	BC
Crop.S. 3--Trees & Vines	C
Ag. Bus. 2--Ag. Bus. Management (3)	BC
Elective (3)	BC/C

GRADE 14 FALL

COURSES	SITE
English	BC
Behaviorial Science (2)	BC
Physical Fitness (1)	BC
Crop.S. 5--Weed Control (3)	C
Crop.S. 6--Soils (3)	C
Elective (3)	BC/C

GRADE 11 SPRING

COURSES	SITE
American History	HS
English	HS
Mathematics	HS
Physical Science or Chemistry	HS
Crop.S. 7--Irrigation (3)	C
Mech. Ag. 2--Equip. Ser. & Opr. (3)	C
Typing/Computer Intro.	ROP

GRADE 12 SPRING

COURSES	SITE
American Government	HS
English	HS
Conversational Spanish	HS
P.E. or Elective	HS
Technical Math (3)	C
Crop.S. 2--Alfalfa & For. Crop (3)	C

GRADE 13 SPRING

COURSES	SITE
English-Speech (3)	BC
Crop.S. 4--Ad. Trees Crops & Vines (3)	C
Mech. Ag. 6--Farm Fabrication (3)	C
Elective (3)	BC/C
Elective (3)	BC/C

GRADE 14 SPRING

COURSES	SITE
Humanities (3)	BC
Fine Arts (3)	BC
Physical Fitness (1)	BC
Crop.S. 8--Entomology (3)	C
Mech. Ag. 3--Farm Power (3)	C
Elective (3)	BC/C

CERTIFICATE OF COMPETENCY IN TYPING	HIGH SCHOOL DIPLOMA AND/OR CERTIFICATE OF COMPETENCY IN FIELD CROPS PRODUCTION UPON COMPLETION OF GRADE 12 SPRING SEMESTER	CERTIFICATE OF COMPETENCY IN TREE AND VINE CROPS AT THE END OF GRADE 13	ASSOCIATE OF SCIENCE DEGREE IN CROP PRODUCTION CERTIFICATE IN AGRONOMY

DIPLOMA/CERTIFICATE/DEGREE

WHERE COURSES WILL BE TAUGHT (SITE)

AGRICULTURE CENTER -- C
BAKERSFIELD COLLEGE -- BC
HIGH SCHOOL CAMPUS -- HS
REGIONAL OCCUPATIONAL PROGRAM -- ROP

NO. OF COLLEGE UNITS INDICATED IN:

( )

SUGGESTED ELECTIVES

AGRICULTURE BUSINESS 3--AGRICULTURE MARKETING & ECONOMICS
AGRICULTURE BUSINESS 4--ACCOUNTING & FARM MANAGEMENT
AGRICULTURE BUSINESS 5--AGRICULTURE COMPUTERS
AGRICULTURE BUSINESS 6--AGRICULTURE LABOR RELATIONS
ANIMAL SCIENCE 1--INTRODUCTION TO ANIMAL SCIENCE
MECHANIZED AGRICULTURE 4--FARM ENGINES
MECHANIZED AGRICULTURE 5--FLUID & PNEUMATIC POWER
MECHANIZED AGRICULTURE 7--FARM TRACTORS
MECHANIZED AGRICULTURE 8--FARM SMALL ENGINES
ORNMENTAL HORTICULTURE 1--PLANT PROPAGATION
WELDING 1--OXY/ACETYLENE
WELDING 538-ARC

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KERN HIGH SCHOOL DISTRICT AND BAKERSFIELD COLLEGE
MECHANIZED AGRICULTURE

GRADE 11 FALL		GRADE 12 FALL		GRADE 13 FALL		GRADE 14 FALL	
COURSES	SITE	COURSES	SITE	COURSES	SITE	COURSES	SITE
American History	HS	American Government	HS	English-Composition (3)	BC	English-Technical Writing (3)	BC
English	HS	English	HS	Humanities (3)	BC	Behavorial Science (3)	BC
Mathematics	HS	Conversational Spanish	HS	Mech. Ag. 5--Fluid Pneumatic Power (3)	C	Physical Fitness (1)	BC
Physical Science or Chemistry	HS	P.E. or Elective	HS	Welding 53B--ARC (3)	BC	Mech. Ag. 7--Farm Tractors (3)	C
Ag. Bus. 1--Intro. to Col. Ag. (3)	C	Technical Math (3)	C	Auto 1--Basic Auto (3)	BC	Elective (3)	BC/C
		Mech. Ag. 3--Farm Power (3)	C	Elective (3)	BC/C	Elective (3)	BC/C

GRADE 11 SPRING		GRADE 12 SPRING		GRADE 13 SPRING		GRADE 14 SPRING	
COURSES	SITE	COURSES	SITE	COURSES	SITE	COURSES	SITE
American History	HS	American Government	HS	English-Speech (3)	BC	Humanities (3)	BC
English	HS	English	HS	Mech. Ag. 6--Farm Fabrication (3)	C	Fine Arts (3)	BC
Mathematics	HS	Conversational Spanish	HS	Mech. Shop 1--Elem. (3)		Physical Fitness (1)	BC
Physical Science or Chemistry	HS	P.E. or Elective	HS	Elective (3)	BC/C	Mech. Ag. 8--Farm Small Engines (3)	C
Mech. Ag. 1--Intro. to Ag. Mech. (3)	C	Technical Math (3)	C	Elective (3)	BC/C	Elective (3)	BC/C
Mech. Ag. 2--Equip. Ser. & Opr. (3)	C	Mech. Ag. 4--Farm Engines (3)	C				

CERTIFICATE OF COMPETENCY IN SERVICE AND OPERATION UPON COMPLETION OF GRADE 11, SPRING SEMESTER	HIGH SCHOOL DIPLOMA AND/OR CERTIFICATE OF COMPETENCY IN ENTRY LEVEL FARM MECHANICS	CERTIFICATE OF COMPETENCY IN FABRICATION AND REPAIR	ASSOCIATE OF SCIENCE DEGREE IN MECHANIZED AGRICULTURE

DIPLOMA/CERTIFICATE/DEGREE

WHERE COURSES WILL BE TAUGHT (SITE):

AGRICULTURE CENTER -- C
BAKERSFIELD COLLEGE -- BC
HIGH SCHOOL CAMPUS--HS
REGIONAL OCCUPATIONAL PROGRAM -- ROP

NO. OF COLLEGE UNITS INDICATED IN:

( )

SUGGESTED ELECTIVES

AGRICULTURE BUSINESS 2--AGRICULTURE BUSINESS MANAGEMENT
AGRICULTURE BUSINESS 5--AGRICULTURE COMPUTERS
ANIMAL SCIENCE 1--INTRODUCTION TO ANIMAL SCIENCE
CROP.S. 1--PRINCIPLES OF CROP PRODUCTION
CROP. S. 3--TREES & VINES
CROP. S. 6--SOILS
CROP. S. 7--IRRIGATION
CROP. S. 8--ENTOMOLOGY
ORNAMENTAL HORTICULTURE 4--PLANT IDENTIFICATION
AUTOMOBILE 102 B--AUTOMOBILE ENGINES MACHINERY
MACHINE SHOP 53D--ADVANCED MACHINE SHOP
MECHANICAL TECHNICAL 59A--BASIC HYDRAULIC FLUID MECHANICAL
WELDING 1--OXY/ACETYLENE
WELDING 74--TIG AND MIG

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KERN HIGH SCHOOL DISTRICT AND BAKERSFIELD COLLEGE
ORNAMENTAL HORTICULTURE

GRADE 11 FALL		GRADE 12 FALL		GRADE 13 FALL		GRADE 14 FALL	
COURSES	SITE	COURSES	SITE	COURSES	SITE	COURSES	SITE
American History	HS	American Government	HS	English-Composition (3)	BC	English-Technical (3)	BC
English	HS	English	HS	Humanities	BC	Behavorial Science (3)	BC
Mathematics	HS	Conversational Spanish	HS	Orn. Hort. 4—Plant Identification (3)	BC	Physical Science (3)	BC
Physical Science or Chemistry	HS	P.E. or Elective	HS	Crop.S. 6—Soils (3)	C	Orn. Hort. 6—Landscape Cont./Maint. (3)	BC
Ag. Bus. 1—Intro. to Cal. Ag. (3)	C	Technical Math (3)	C	Mech. Ag. 1—Intro. to Ag. Mech. (3)	C	Crop.S. 7—Irrigation (3)	C
		Ag. Bus. 2—Ag. Bus. Management (3)	BC			Mech. Ag. 6—Farm Fabrication (3)	C

GRADE 11 SPRING		GRADE 12 SPRING		GRADE 13 SPRING		GRADE 14 SPRING	
COURSES	SITE	COURSES	SITE	COURSES	SITE	COURSES	SITE
American History	HS	American Government	HS	English-Speech (3)	BC	Humanities (3)	BC
English	HS	English	HS	Orn. Hort. 5—Land. Design (3)	BC	Fine Arts (3)	BC
Mathematics	HS	Conversational Spanish	HS	Crop.S. 8—Entolomogy (3)	C	Physical Fitness (1)	BC
Physical Science or Chemistry	HS	P.E. or Elective	HS	Mech. Ag. 2—Ag. Equip. Ser. & Oper. (3)	C	Orn. Hort. 7—Turf Management (3)	BC
Orn. Hort. 1—Plant Propagation (3)	BC	Technical Math (3)	C	Ag. Bus. 3—Ag. Marketing & Economics (3)	BC	Mech. Ag. 4—Farm Engines (3)	C
Orn. Hort. 2—Nursery Management (3)	BC	Orn. Hort. 3—Plant Identification	BC	Elective (3)	BC/C	Ag. Bus. 5—Agriculture Computers (3)	BC
						Elective (3)	BC/C

DIPLOMA/CERTIFICATE/DEGREE			
CERTIFICATE OF COMPETENCY IN PLANT CARE AND MAINTENANCE	HIGH SCHOOL DIPLOMA AND/OR CERTIFICATE OF COMPETENCY IN NURSERY MANAGEMENT UPON COMPLETION OF GRADE 12 SPRING SEMESTER	CERTIFICATE OF COMPETENCY IN LANDSCAPE DESIGN	ASSOCIATE OF SCIENCE DEGREE IN ORNAMENTAL HORTICULTURE AND/OR CERTIFICATE OR COMPETENCY IN LANDSCAPE MAINTENANCE/TURF

WHERE COURSES WILL BE TAUGHT (SITE):

AGRICULTURE CENTER — C
BAKERSFIELD COLLEGE — BC
HIGH SCHOOL CAMPUS -- HS
REGIONAL OCCUPATIONAL PROGRAM — ROP

NO. OF COLLEGE UNITS INDICATED IN:

( )

SUGGESTED ELECTIVES

AGRICULTURE BUSINESS 4--AGRICULTURE ACCOUNTING & FARM MANAGEMENT
AGRICULTURE BUSINESS 6--AGRICULTURE LABOR RELATIONS
CROP.S. 5--WEED CONTROL
MECHANICAL AGRICULTURE 3—FARM POWER
MECHANICAL AGRICULTURE 5—FLUID & PNEUMATIC POWER
WELDING 1--OXY ACETYLENE
WELDING 538-ARC

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It can been seen from these schedules that with a few exceptions the high school students will be enrolled in classes either on their own respective campuses or at the Center. In Agri-Business these students will take three classes at Bakersfield College since the emphasis will be on computers and the college has the facilities and staff for this experience. Also, since the College has facilities and staff in Ornamental Horticulture, the high school students who opt for this program would take four classes at the College.

In grades 13 and 14 most classes would be on the Bakersfield College campus, but the College would also schedule classes at the Center to give students hands-on experiences in mechanized agriculture, animal science and crop production. Laboratory space in soils, entomology and plant science will also be available at the Center.

In summary, the four proposed programs outlined here represent the beginning of coordinated college-high school curriculum organized on a two-plus-two basis. At a later date, animal science will probably be added, as well as other programs as the plan develops and needs are identified.

THE GENERAL EDUCATION COMPONENT

There is a long standing committment to the values of general education by both the Kern High School District and the Kern Community College District. Graduation requirements for a high school diploma, college degree, or a certificate of completion all include courses that can be subsumed under general education.

Results of the Survey of agriculture industry employers also emphasized the need for generally educated people to take their places as technicians and managers in this industry. Employers want and need not only specifically trained employees, but also people who can grow on the job.

Among the administrators and faculty working on the development of the Two-Plus-Two Program there is a feeling that the general education component should not just be "more of the same", but rather provide a new dimension that will pay more than lip service to general education. With this in mind, Bakersfield College applied for and was awarded a $250,000 FIPSE* grant to train high school and college teachers in the organization and presentation of general education courses for high school and college students interested in the various agriculture curriculums. Summer workshops will be scheduled for 1985, 1986, and 1987 for participating high school and college instructors. Participants will include six college agriculture instructors, four high school agriculture teachers, three college instructors in English, mathematics, and humanities and their three counterparts from the high schools. The plan is for these sixteen faculty members to spend 144 hours each summer planning general education as well as technical modules that will span several grade levels. Once developed, these modules will become pilot programs during the succeeding school years during which time they would be presented to agriculture students, evaluated, and refined. The proposed goals of this project are as follows on page 18.

---

* Fund for the Improvement of Postsecondary Education

(1) By fall of 1985 courses for four areas (agriculture business, crop science, mechanized agriculture and ornamental horticulture) will be completed and be ready for classroom testing. These courses include the sequenced English curriculum, the mathematics curriculum, the humanities offerings and the competency based technical courses in agriculture.

(2) By fall of 1986 the courses in the four areas will have been revised and the courses in forestry and animal science will have been developed and will be ready for classroom testing.

(3) By fall of 1987 all the courses will have been piloted, refined and revised utilizing all the means of evaluation including student written evaluations; student, teacher and employer interviews; and specific course and proficiency data.

(4) By Fall of 1987, the Curriculum Committee composed of 16 teachers will be able to share not only the specific courses taught but also the detailed curriculum process used to create the courses and the instructional methodology incorporated into the courses to encourage student cooperative learning and student use of all learning modalities.

(5) By fall of 1987 the Joint Community College and High School Agriculture Committee including all 16 teachers who were involved in the curriculum development will be ready to share the entire program with people outside their immediate area, including county-wide, state and national dissemination.

This FIPSE Project not only illustrates the committment to general education on the part of the high schools and college, it is a concrete plan to do something different in general education that conceivably could integrate English, mathematics and humanities into agriculture curriculums. This would be a bold new step that should pay handsome dividends for both students and the agriculture industry.

Since the Two-Plus-Two Program in agriculture is also experimental, using this program for the FIPSE Project in general education is a natural step that should prove productive.

WHO ARE THE STUDENTS?

In the proposed Two-Plus-Two Agriculture Program the students will enroll at the Center from Bakersfield College and the high schools. Taking Bakersfield College students first, through the usual assessment and counseling, students will enroll in one of the several agriculture programs. If courses in these programs are offered at the Center because of superior facilities and opportunities for hands-on experience, students will transport themselves to the Center for these particular classes. Examples would be agriculture mechanics, soil science, plant science, and later animal science.

High school students enrolling in the Two-Plus-Two Program would come a different route. Those interested in agriculture during their first two years of high school would take introductory agriculture classes as well as general education classes on their respective high school campuses. Those opting to continue with agriculture training through the Two-Plus-Two Program would, for their junior and senior years in high school, take most general education courses on their high school campuses and enroll in agriculture courses at the ROP/Agriculture Center. These courses would carry college credit; students would have to qualify through an assessment/prerequisite system; and classes would enroll both college and high school students. The following schematic illustrates the progression of students through the system and the Center.

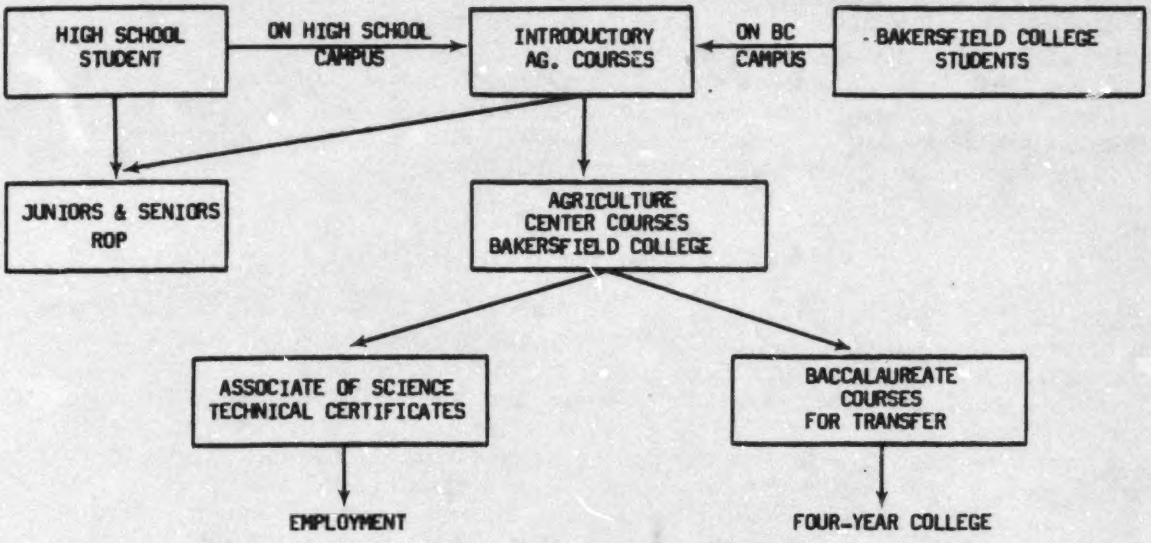

Figure 2--Student progression through the agriculture program.

At the conclusion of the 12th grade or any subsequent college semester, students qualifying for a certificate of competency may opt for employment in the agriculture industry. Students planning to get a baccalaureate degree would complete the requisite courses and transfer to a four-year college or university for their final two years. So--students in the Two-Plus-Two Program might be training for job entry skills or they might be training for a baccalaureate degree. In either instance, they would be enrolling in agriculture as well as integrated courses in general education.

FACILITIES AND COST

Appendix F, pages 46-47, details the plot plan and concept drawings for the ROP/Agriculture Center. There are 73 usable acres on the site divided among buildings, cropland, pasture, and livestock pens. The Agriculture Mechanics Building is the facility given over to the Two-Plus-Two Program. This building will house the Agriculture Mechanics Program and will also provide laboratory space for soils, entomology and plant science. The area in the plot plan labeled "Heavy Equipment Operation" will also be used as an adjunct to the Agriculture Mechanics Program. The livestock and animal pasture areas will be useful at a later date when Animal Science is included as a curriculum in the Two-Plus-Two Program.

The cost of acquiring, developing, and equipping the Agriculture Center will be approximately $2,500,000. Additional funds will have to be invested annually for maintenance and operations. Personnel costs will include faculty and administrative salaries plus those of support staff. New personnel, not already employed by the college or high school, would include one clerical assistant and two farm technicians. Initial equipment costs will approximate $250,000 and the local agriculture industry will be called upon to assist with the more costly items.

EVALUATION/MODIFICATION

An experimental plan such as the Two-Plus-Two Program will bear careful evaluation. Innovation comes hard in education, and critics of this effort will surface soon enough. The most illuminating test will be the numbers of qualified students coming out of the pipeline at the various termination points beginning with the completion of the 12th grade. Possession of job entry skills would be one test. Employers can assist with this component of evaluation. Retention and graduation from high school would be another measure of the success of the program. Qualification for a Certificate of Competency or a Certificate of Achievement would be still another means of evaluation. Persistence to receipt of the Associate of Science Degree would be another measure, and success at four-year colleges and universities would also speak to the viability of the program.

For years the education establishment has been hearing dissatisfaction from the agriculture industry. If, through the Advisory Committee, agriculture employers can be given a voice in the development of the various training programs, they should also, then, be able to help the schools decide on the worth of these programs.

A systematic process of evaluation should be developed early so that it becomes on-going leading to modifications in the curriculum, facilities, equipment, and staffing as needed.

A FINAL NOTE

The Two-Plus-Two Agriculture Program in Kern County is a cooperative attempt on the part of two school districts, one high school and one community college, that has great promise. Those in positions of leadership in the two districts acknowledge the obstacles of tradition, parochialism, and combining students of differing maturity level in the same class. Keeping the lines of communication open, recruiting and enrolling students who have a reasonable chance to succeed, and support of the chief administrative officers will be necessary ingredients if the program is to be successful. The emphasis on general education through the FIPSE Project, the willingness of the High School District to provide the facilities, the support of the Agriculture Advisory Committee from the agriculture industry, and the enthusiasm of the participating faculty all add up to an imposing positive balance sheet. This project has an excellent chance to succeed, and in doing so can show the way for two-plus-two programs in business, technical education, health careers, and many others.

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APPENDIX

APPENDIX A

KERN COMMUNITY COLLEGE DISTRICT
AND
KERN HIGH SCHOOL DISTRICT

AGRICULTURE ADVISORY COMMITTEE

1. Mr. Jack Hunt
   Vice President
   Tejon Ranch

2. Mr. Angelo Mazzei
   Owner
   Mazzei Injector Company

3. Mr. Med Garcia
   Director of Personnel
   Tenneco West

4. Mr. Joe Garone
   President
   Garone Farm & Cattle Company

5. Mr. Dave Stevenson
   Vice President
   J.G. Boswell Company

6. Mr. Bill Duncan
   Director of Farming Operations
   Superior Farming Company

7. Mr. Robert Lake
   Vice President
   Rain for Rent

8. Mr. Bill Zingg
   President (Owner)
   Kern Turf Supply Company

9. Mr. Kevin McDermott
   Vice President
   Cal Cot

10. Mr. Norm King
    Vice President
    Jackson-Perkins

11. Mr. Dennis Torigian
    Vice President
    Minnehoma Land & Farming Co.

12. Mr. Tim Nord
    President (Owner)
    T.F. Nord & Associates

APPENDIX B

RESOLUTION OF THE BOARD OF TRUSTEES
OF THE KERN COMMUNITY COLLEGE DISTRICT
TO ESTABLISH A JOINT CITIZENS ADVISORY COMMITTEE
WITH THE KERN HIGH SCHOOL DISTRICT

RECITALS:

A. California's largest and most important industry is agriculture, and Kern County ranks second in the State in agriculture production and is the leading county in the world in farm exports to foreign countries.

B. The agriculture industry is the largest employer of people in Kern County and California, and this large labor force is the backbone of California's farming community.

C. It is of utmost importance that people entering and those already in the agriculture labor force be educated so they can meet the challenge of increasing technology and stay abreast of the constantly changing needs of this industry.

D. The Board of Trustees of the Kern Community College District and the Kern High School District feel a need exists to review and evaluate the current vocational agriculture education offerings in both districts in relationships to the current needs of Kern County agriculture.

RESOLVED:

1. The above recitals are true.

2. A joint citizens advisory committee representing the high school and community college district shall be formed.

3. The major purposes of the committee shall be: (a) to advise the districts of the agricultural needs in the county and develop an instructional program that is articulated from high school courses through the community college level; (b) to eliminate unnecessary duplication of efforts in instructions and promote the sharing of facilities, equipment, and instructors and (c) to investigate and promote possible assistance and support of agriculture representatives in the community.

CERTIFICATION:

As Chancellor and Secretary to the Board of Trustees, Kern Community College District, I certify that the foregoing is a true and correct copy of the Resolution of the Board of Trustees adopted at its meeting on September 3, 1981, by the following vote: Ayes—7; Noes—0; Absent—0.

James C. Young
Chancellor and Secretary
Board of Trustees

APPENDIX C

FIRMS RESPONDING TO SURVEY

Belridge Farming and Packing Co.
Berchtold Equipment Company
Blue Mountain Hereford Ranch
J.D. Boswell
Bugni Brothers Hardware
Bugni Farms
California Republic Bank
Case Power and Equipment
Arnold Catani, Jr.
Cinderella Flower and Gift Shoppe, Inc.
Cooper's Nursery
Costa Farms
Costerisan Farms
Opal Fry and Son
Garone Farm and Cattle
Getty Oil Company
Giumarra Vineyards
Grainery Feed Store
Jimmie Icardo Farms
Jackson and Perkins Company
Kern Farming Company
Kern Turf Supply, Inc.
Lost Hills Vineyards
Martin's Garden Equipment
MASCO Enterprises
Toby Mazzie
McKittrick Ranch, Inc.
Miller Livestock Truck Co., Inc.
Nickel Enterprises
Nikkel Equipment Co., Inc.
T.F. Nord & Associates, Inc.
Old River Sod
Orange Cove Ag.-Chemical, Inc.
Otten Dairy
Porter Farms, Inc.
Rain for Rent, Inc.
Robert Farms, Inc.
Dale G. Scales Associates, Inc.
SimCal SoilBuilders
South Kern Mahinery
Superior Farming Company
Tejon Farming Company
Tejon Ranch Co. -- 3 Brand Cattle
Tenneco West
Treasure Cove, Ltd.
Vignolo Farms
West Kern Machinery
White Forest Nursery

APPENDIX D

BAKERSFIELD COLLEGE — KERN HIGH SCHOOL DISTRICT
AGRICULTURE SURVEY

1. Name of firm: _____

2. Type of Business:

- ☐ Agriculture Management
- ☐ Agriculture Mechanics
- ☐ Agriculture Sales and Service
- ☐ Animal Science
- ☐ Ornamental Horticulture
- ☐ Natural Resources
- ☐ Plant Production
- ☐ Other: _____

3. Number of permanent employees: _____

4. Number of part-time employees: _____

5. Number of seasonal employees: _____

6. Is your work force expanding?

Currently	☐ Yes	☐ No
In the next five years	☐ Yes	☐ No

7. Would you like to see local training programs tailored more toward meeting the specific needs of your firm:

In the high schools	☐ Yes	☐ No
In the community college	☐ Yes	☐ No

In what ways? _____

_____

_____

_____

_____

8. How could the existing agriculture programs currently provided to improved?

Kern High School District Schools	Bakersfield College
_____	_____
_____	_____
_____	_____
_____	_____

9. What criticisms do you have of the existing agriculture programs in:

Kern High School District Schools	Bakersfield College
_____	_____
_____	_____
_____	_____
_____	_____

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Agriculture Survey (continued)

10. Does your firm have a formal internal program? ☐ Yes ☐ No

If yes—in what areas? Check (✓) your most successful program(s).

_____
_____
_____
_____
_____

11. Does your firm have a need for short-term courses for upgrading skills of your employees:

☐ Yes ☐ No

If yes, please explain _____
_____
_____
_____
_____

12. Do you send employees out of your company for training? ☐ Yes ☐ No

If yes—for what programs:

_____
_____
_____
_____
_____
_____

13. Would you or someone from your firm like to be actively involved in advising the high schools and college regarding agriculture programs?

Name: _____ Area of expertise: _____

Firm: _____ Phone number: _____

Name: _____ Area of expertise: _____

Firm: _____ Phone number: _____

Name: _____ Area of expertise: _____

Firm: _____ Phone number: _____

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Agriculture Survey (continued)

14. Please respond to these questions for each area listed below that pertains to your operation.

	Number of employees currently working in each area	Number of employees working part-time/ seasonal	Check these areas you feel will expand in your firm in the next five years	Check the curriculum your firm would like to see developed by the local community college	Check the curriculum your firm would like to see developed by the local high schools
a) Agriculture Management					
1) Accounting	___	___	___	___	___
2) Data Processing	___	___	___	___	___
3) Basic Records	___	___	___	___	___
4) Credit & Finance	___	___	___	___	___
5) Budgeting	___	___	___	___	___
6) Marketing	___	___	___	___	___
b) Agriculture Mechanics					
1) Equipment Operation	___	___	___	___	___
2) Maintenance & Service	___	___	___	___	___
3) Machinery Set-up	___	___	___	___	___
4) Equipment Repair/Welding	___	___	___	___	___
c) Agriculture Sales & Services					
1) Pharmaceutical	___	___	___	___	___
2) Fertilizers	___	___	___	___	___
3) Pesticides	___	___	___	___	___
4) Seed	___	___	___	___	___
5) Equipment & Parts	___	___	___	___	___
d) Animal Science					
1) Animal Producer	___	___	___	___	___
2) Marketing	___	___	___	___	___
3) Processing	___	___	___	___	___
4) Livestock Inspection	___	___	___	___	___

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Agriculture Survey (continued)

	Number of employees currently working in each area	Number of employees working part-time/ seasonal	Check these areas you feel will expand in your firm in the next five years	Check the curriculum your firm would like to see developed by the local community college	Check the curriculum your firm would like to see developed by the local high schools
e) Ornamental Horticulture					
1) Floral	___	___	___	___	___
2) Nursery	___	___	___	___	___
3) Landscape Contracting	___	___	___	___	___
4) Grounds Maintenance	___	___	___	___	___
5) Landscape Architecture	___	___	___	___	___
f) Natural Resources					
1) Soils	___	___	___	___	___
2) Forestry	___	___	___	___	___
3) Inspection	___	___	___	___	___
4) Recreation	___	___	___	___	___
g) Plant Production					
1) Agronomy	___	___	___	___	___
2) Irrigation	___	___	___	___	___
3) Tree Crops	___	___	___	___	___
4) Processing	___	___	___	___	___
5) Vegetables	___	___	___	___	___
6) Viticulture	___	___	___	___	___
7) Enology	___	___	___	___	___

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Agriculture Survey (continued)

h) Other (please note)

Thank you for your time.

LWC:pb
2-26-82

APPENDIX E

BAKERSFIELD COLLEGE – KERN HIGH SCHOOL DISTRICT
AGRICULTURE SURVEY RESULTS
MAY 1982

1. Forty-eight (48) firms responded to the survey. A list of these firms may be found in Appendix C, page 24.

2. Type of business (duplicated count):

   A. Agriculture Management--20
   B. Agriculture Mechanics--11
   C. Agriculture Sales and Service--17
   D. Animal Science--6
   E. Ornamental Horticulture--9
   F. Natural Resources--1
   G. Plant Production--8
   H. Other--12
   (land development, banking (2), feed lot, turf irrigation and maintenance products (2), shipper (2), winery, dairy, equipment sales, agriculture real estate)

3-5. Number of permanent, part-time and seasonal employees.

No. of Employees	No. of Firms Reporting Employees*	
	Permanent & Part-time	Seasonal
1 - 19	18	10
29 - 39	6	3
40 - 59	6	3
60 - 79	1	1
80 - 99	3	-
100 - 119	2	2
120 - 139	-	1
140 - 159	-	2
160 - 179	3	-
180 - 199	-	-
200 & above	8	8

* One large company did not report number of employees

6. Is your work force expanding?

Currently	Yes--24	No--24
In the next five years	Yes--29	No--15

7. Would you like to see local training programs tailored more toward meeting the specific needs of your firm?

In the high schools	Yes--37	No--5
In the community college	Yes--39	No--5

In what way?

Mechanics--8
More practical experience--5
Clerical--4
Irrigation--4
Equipment operation--3
Farm management--2
Mathematics--2
Pesticide use and regulations--2
Production--2
Sales--2
Welding--2
Safety
Equipment set-up
Floral design
Pest identification
Fertilization
Nursery skills
PCA training
Dairy farming
Irrigation design
Agriculture real estate
Accounting
English
Government
Spelling
Spanish
Reading

SPECIFIC SUGGESTIONS:

Cooperation with local industry to meet the area's needs in the growing and harvesting of crops.

Students need to be exposed to the many complexities that surround the agriculture and horticulture industry. They need to realize that these fields are not all tractors and lawnmowers, but they are economics, chemistry, botany, biology, English and psychology all wrappped into one.

Directed to specific problems. Ag-related computer applications. Teach basic understanding of business structure of agriculture--e.g. markets.

In high school a strong general education program is vital. In the community college a basic data processing program would be beneficial. Increased training in agriculture mechanics and equipment operation would be helpful. Encouragement to participate (or develop) an internship for summer employment would be desirable.

Diesel mechanics mainly, with an emphasis also in the area of agriculture business management. Providing a background in agriculture practices would better prepare graduates for a wide range of career opportunities.

We need people in management who understand the basic principles of irrigation, pest management and agronomy.

I would like to see the schools train people to be responsible workers. The students should be given some inkling by the school system that these future employers will expect on the job performance for the dollars they are paid.

We feel that a student should achieve his or her basic skills at the high school level and then continue on in community college level or beyond to specialize in areas of select interest. It is imperative that a student when graduating from high school, be able to communicate both written and verbally.

Give the agriculture programs equal attention and effort with the academic and sports programs and realize that the cost per student will be greater than other programs. Give more media coverage to the agriculture program. Agriculture should not have to pay its way. NO other lab program pays its own way.

More on the job training in which students would receive credits toward graduation from college based on their performance on the job.

More local training on trouble shooting and advanced electrical training and trouble shooting.

Educate the consumer in water conservation and its future. Also, to relate new ideas and products entering today's fast and changing market involving residential and commercial turf irrigation.

Major needs of this society are (1) elimination of minimum wage and (2) elimination/reduction of restrictions on employment of minors. These steps will enable young people to obtain real work experience and build successful attitudes and self-image.

Teach more about feeds and feeding and animal health and animal health products.

Teach students how to think, work and direct others.

We feel a more vocational training system should be employed. One that carries some merit. An employer should feel confident that a graduate of these courses can do what the school has trained him to do.

High school--ornamental horticulture projects (similar to livestock projects). College--production, pest identification and control, plant use, maintenance of plants, etc.

Use current production equipment and material to train students in agriculture mechanics program so when their training is complete they have something to offer on the job market.

8. How could the existing agriculture programs currently provided be improved?

Kern High School District:

Do not know--8
Practical programs--7
Student placement/jobs--3
More emphasis on local crops--2
Agriculture shops at school
Ask students and teacher
Better facilities
Do not major in cattle and other animal programs
Doing good job
Eliminate poultry and rabbits
More contact with local growers and businesses
Night classes for adults
Tractor driving
Update books

SPECIFIC SUGGESTIONS:

Include local agricultural and real estate history in current history classes to orient students and perk their interest.

The high schools should make their agriculture programs meet the same standards as their science and humanities programs.

More hands on. Science is good, but should have more cultural practice in plots or farm locations. Work more with other farming people in the area.

Not familiar with classes currently being provided; but the importance of high-quality "general education" classes in addition to the specialized "core" classes such as those in agriculture cannot be overemphasized.

Bakersfield College:

Do not know--7
Practical experience--6
Mechanics--2
More contact with local growers and businesses--2
More emphasis on local crops--2
Agriculture production
Ask students and teachers
Continue agriculture and real estate history
Increase budget allocations to insure enough materials and staff
Irrigation
More agri-business classes
More shop skill
Personnel management

Bakersfield College (continued)

Record keeping
Short courses in specific popular models of farm equipment
Short courses similar to Davis
Teach veterinarian medication
Tractor driving
Transfer program to four-year schools

SPECIFIC SUGGESTIONS:

The programs at Bakersfield College are very, very educational in regards to the real agri-world.

More hands on. Science is good, but should have more cultural practice in plots or farm locations. Work more with other farming people in the area.

Not familiar with classes currently being provided; but the importance of high-quality "general education" classes in addition to the specialized "core" classes such as those in agriculture cannot be overemphasized.

9. What criticisms do you have of the existing agriculture programs:

Kern High School District:

None--7
Do not know--3
Not sufficient agriculture related courses offered--2
"Club Calif" orientation
Geared to projects (F.F.A.)--not enough practical agriculture
Lack of agriculture mechanics shops
Limit animal science
No training in management
Not enough local contact with growers
Student doesn't know what job requires
They don't learn the farming know how

CRITCISMS:

Too much time spent on livestock programs. Should have more time in growing and farming.

Have more or diversified programs such as horticulture or viticulture. More farm originated subject.

Lack of formal training in supervision and labor management. More practical experience should be encouraged in students' areas of endeavor.

They don't offer tractor and field work.

Kern High School District (continued)

I have been operating a business in Kern County for three years and I have no idea what the existing agriculture programs are.

Teacher/student ratio is a problem most administrators fail to see with respect to a good agriculture program.

Don't tell farmers what they are doing.

Most textbooks situations teach basics that are not generally adapted to our area--usually midwest farming.

Too much emphasis on animals and crops not important to this area. Need more irrigation theory and technique.

Bakersfield College:

None--7
Do not know--2
Need more field and on the job experience for students and grads--2
Lack of agriculture mechanics shops
Need to attract more students
Not in touch with current trends and times
Not sufficient--need enlarging
Very few

CRITCISMS:

Too much time spent on livestock programs. Should have more time in growing and farming.

Have more or diversified programs such as horticulture or viticulture. More farm originated subject.

Lack of formal training in supervision and labor management. More practical experience should be encouraged in student's area of endeavor.

They don't offer tractor and field work.

I have been operating a business in Kern County for three years and I have no idea what the existing agriculture programs are.

The staff and facilities are not adequate enough to expand into the needed areas of instruction and training.

Agriculture programs should be given more attention since agriculture is our number one income after oil in Kern County.

Don't tell farmers what they are doing.

Bakersfield College (continued)

Most textbook situations teach basics that are not generally adapted to our area--usually midwest farming.

Too much emphasis on animals and crops not important to this area. Need more irrigation theory and technique.

10. Does your firm have a formal internal training program?

Yes--26 No--17

In what areas?

On the job training--10
Safety--6
Supervisory and management--5
Equipment repair and maintenance--4
Handling pesticides--2
Horticulture related--2
Sales--2
Agriculture accounting
Computer skills
First aid
Flower arranging
Handling hazardous materials
Irrigation
Irrigation controller and valve repair
Irrigation service
John Deere Pathfinder
Spanish

11. Does your firm have a need for short-term courses for upgrading the skills of your employees?

Yes--28 No--16

Please explain:

Safety--6
Sales training/marketing--5
Basic agriculture mechanics--4
Personnel--4
Accounting/record keeping--3
Diesel and hydraulic trouble shooting--3
Pest management--3
Supervisory--3
Basic irrigation--2
Equipment maintenance--2
Pruning--2
Spanish--2
All aspects of nursery
Budgeting

11. (continued)

Credit
Crop culture
Equipment changes
Equipment operation
First aid
Hay baler
Hydrostatic systems
Irrigation system design
On the job training
Plant identification
Soils
Spelling
Typing
Welding

SPECIFIC SUGGESTIONS:

Limited at this point but trying to develop them further.

Basic skills in all aspects of agriculture mechanics, and a minimum of five hours a day, five days a week for two years at the college level, so that the individual has his mind made up as to what field he wishes to pursue in the future.

To bring mechanics current with new procedures relating to diagnosis and repair of farm machinery.

I think outside training offers ideas not covered in our operation and the employee seems to gain a greater interest while attending outside programs.

Not really, as most are Mexicans laborers.

Specific training is needed from time to time but very difficult to arrange.

Education is a necessity for sales and service in our industry. Our sales people must know their products and how they are used in order to be successful in this competitive marketplace.

Equipment and style changes from year to year. Must keep on top of safety standards.

The rapid increase of knowledge and new techniques requires us to stay on top as much as possible. Our staff is not trained in teaching skills and it would help greatly if we could enroll employees who want to learn in courses that would train them in our specific areas of need.

We need some training in the basics of irrigation--in Spanish if possible.

Refresher courses for office personnel would be helpful. Also, sales people have to have 40 hours of upgrading every two years to retain their license.

12. Do you send employees out of your company for training?

Yes--28 No--21

What programs?

Mechanics--8
Leadership/supervisory--7
Safety--6
Equipment operations--5
Programs sponsored by suppliers--5
Pesticides--4
Irrigation system design--3
Sales--3
Industry seminar/trade conference--2
NSE training--2
Pruning--2
Various--2
Accounting
Banking
Business
CAN programs
Crop production
Hydraulics
Irrigation controller and valve repair
Language skills
State requirements

COMMENTS:

None available

Use adult school

13. A list of those firms interested in becoming involved in advising the high schools and college regarding agriculture programs may be found in Appendix C, page 24.

14-A. Number of employees currently working each area: (indicates number of firms reporting in each category)

	1-19	20-39	40-59	60-79	80-99	100-119	120-139	140-159	160-179	180-199	200 & Above	Total Number Employees
Agriculture Management												
Accounting	29	1	1	-	-	-	-	-	-	-	-	172
Data Processing	15	1	1	-	-	-	-	-	-	-	-	111
Basic Records	18	2	-	-	-	1	-	-	-	-	-	206
Credit & Finance	22	-	-	-	-	-	-	-	-	-	-	51
Budgeting	20	-	-	-	-	-	-	-	-	-	-	41
Marketing	17	1	1	-	-	-	-	-	-	-	-	115
Purchasing	1	-	-	-	-	-	-	-	-	-	-	4
Agriculture Mechanics												
Equipment Operation	17	3	-	1	-	2	-	-	-	-	-	409
Maintenance & Service	21	3	2	-	-	-	-	-	-	-	-	242
Machinery Set-up	15	2	-	-	-	-	-	-	-	-	-	93
Equipment Repair/Weld.	23	4	-	1	-	-	-	-	-	-	-	229
Agriculture Sales & Services												
Pharmaceutical	2	-	-	-	-	-	-	-	-	-	-	8
Fertilizers	5	-	-	-	-	-	-	-	-	-	-	13
Pesticides	5	-	-	-	-	-	-	-	-	-	-	16
Seed	5	-	-	-	-	-	-	-	-	-	-	38
Equipment & Parts	9	1	-	1	-	-	-	-	-	-	-	211
Animal Science												
Animal Producer	3	-	1	-	-	-	-	-	-	-	-	66
Marketing	1	-	-	-	-	-	-	-	-	-	-	2
Processing	1	-	-	-	-	-	-	-	-	-	-	4
Livestock Inspection	-	-	-	-	-	-	-	-	-	-	-	-

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14-A. (continued)

	1-19	20-39	40-59	60-79	80-99	100-119	120-139	140-159	160-179	180-199	200 & Above	Total Number Employees
Ornamental Horticulture												
Floral	-	1	-	-	-	-	-	-	-	-	-	23
Nursery	4	-	-	-	-	-	-	-	-	-	1	221
Landscape Contracting	4	-	-	-	-	-	-	-	-	-	-	25
Grounds Maintenance	4	1	-	-	-	-	-	-	-	-	-	59
Landscape Architect	2	-	-	-	-	-	-	-	-	-	-	3
Natural Resources												
Soils	1	-	-	-	-	-	-	-	-	-	-	1
Forestry	1	-	-	-	-	-	-	-	-	-	-	1
Inspection	-	-	-	-	-	-	-	-	-	-	-	-
Recreation	1	-	-	-	-	-	1	-	-	-	-	125
Plant Production												
Agronomy	7	1	-	-	-	-	-	-	1	-	-	231
Irrigation	9	4	1	1	2	-	-	-	-	-	-	423
Tree Crops	3	3	1	-	-	1	-	-	-	-	-	241
Processing	-	-	1	-	-	1	1	-	-	-	-	1,515
Vegetables	6	1	-	-	-	-	-	-	-	-	-	69
Viticulture	5	1	-	2	-	-	-	-	-	-	-	184
Enology	2	-	-	-	-	-	-	-	-	-	-	6
Cotton	-	-	-	1	-	-	-	-	-	-	-	60

* Tenneco West indicated that the number of employees reported is company-wide.

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14-B. Number of employees working part-time/seasonal (indicates number of firms reporting in each category)

	1-19	20-39	40-59	60-79	80-99	100-119	120-139	140-159	160-179	180-199	200 & Above	Total Number Employees
Agriculture Management												
Accounting	6	-	-	-	-	-	-	-	-	-	-	12
Data Processing	1	-	-	-	-	-	-	-	-	-	-	1
Basic Records	8	-	-	-	-	-	-	-	-	-	-	19
Credit & Finance	-	-	-	-	-	-	-	-	-	-	-	-
Budgeting	-	-	-	-	-	-	-	-	-	-	-	-
Marketing	1	-	-	-	-	-	-	-	-	-	-	2
Agriculture Mechanics												
Equipment Operation	5	-	2	-	-	-	-	-	-	-	1	303
Maintenance & Service	6	-	-	-	-	-	-	-	-	-	-	12
Machinery Set-up	3	1	-	-	-	-	-	-	-	-	-	35
Equipment Repair/Weld.	5	-	-	-	-	-	-	-	-	-	-	8
Agriculture Sales & Services												
Pharmaceutical	-	-	-	-	-	-	-	-	-	-	-	-
Fertilizers	-	-	-	-	-	-	-	-	-	-	-	-
Pesticides	2	-	-	-	-	-	-	-	-	-	-	4
Seed	1	-	-	-	-	-	-	-	-	-	-	5
Equipment & Parts	2	1	-	-	-	-	-	-	-	-	-	35
Animal Science												
Animal Producer	3	-	-	-	-	-	-	-	-	-	-	17
Marketing	-	-	-	-	-	-	-	-	-	-	-	-
Processing	-	-	-	-	-	-	-	-	-	-	-	-
Livestock Inspection	-	-	-	-	-	-	-	-	-	-	-	-

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14-B. (continued)

	1-19	20-39	40-59	60-79	80-99	100-119	120-139	140-159	160-179	180-199	200 & Above	Total Number Employees
Ornamental Horticulture												
Floral	-	1	-	-	-	-	-	-	-	-	-	30
Nursery	2	-	-	-	-	-	-	-	-	-	2	1,159
Landscape Contracting	2	-	-	-	-	-	-	-	-	-	-	8
Grounds Maintenance	3	-	-	-	-	-	-	-	-	-	-	9
Landscape Architect	-	-	-	-	-	-	-	-	-	-	-	-
Natural Resources												
Soils	-	-	-	-	-	-	-	-	-	-	-	-
Forestry	-	-	-	-	-	-	-	-	-	-	-	-
Inspection	-	-	-	-	-	-	-	-	-	-	-	-
Recreation	1	-	-	-	-	-	-	-	-	-	-	1
Plant Production												
Agronomy	1	-	-	-	-	-	1	-	-	-	-	125
Irrigation	3	1	-	-	1	-	-	-	-	-	-	132
Tree Crops	-	1	-	-	-	1	-	-	-	-	2	1,030
Processing	-	-	-	-	-	-	-	-	1	-	2	1,735
Vegetables	-	1	1	-	-	-	-	-	-	-	-	80
Viticulture	-	-	2	-	-	2	-	-	-	-	-	300
Enology	-	-	-	-	-	-	-	-	-	-	-	-
Cotton	-	-	-	1	-	-	-	-	-	-	-	60

* Tenneco West indicated that the number of employees reported is company-wide.

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14-C. Areas you feel will expand in your firm in the next five years. (Indicates the number of firms reporting in each category)

Agriculture Management		Ornamental Horticulture	
Accounting	13	Floral	3
Data Processing	13	Nursery	7
Basic Records	11	Landscape Contracting	4
Credit & Finance	11	Grounds Maintenance	4
Budgeting	11	Landscape Architecture	2
Marketing	13		
Agriculture Mechanics		**Natural Resources**	
Equipment Operations	10	Soils	2
Maintenance & Service	15	Forestry	1
Machinery Set-up	11	Inspection	2
Equipment Repair/Weld.	13	Recreation	3
Agriculture Sales & Service		**Plant Production**	
Pharmaceutical	1	Agronomy	2
Fertilizers	4	Irrigation	6
Pesticides	5	Tree Crops	4
Seed	3	Processing	2
Equipment & Parts	8	Vegetables	3
		Viticulture	5
		Enology	0
Animal Science			
Animal Producer	1		
Marketing	0		
Processing	0		
Livestock Inspection	0		

14-D&E. The curriculum your firm would like to see developed by the local community college and the local high schools. (Indicates number of firms reporting in each category)

Agriculture Management	College	High Schools
Accounting	19	14
Data Processing	14	13
Basic Records	16	20
Credit & Finance	17	8
Budgeting	18	7
Marketing	17	8
Purchasing	1	1

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14-D&E. (Continued)

Agriculture Mechanics	College	High Schools
Equipment Operation	11	13
Maintenance & Service	19	19
Machinery Set-up	13	15
Equipment Repair/Welding	22	16
Agriculture Sales & Services		
Pharmaceutical	2	2
Fertilizers	5	5
Pesticides	6	6
Seed	5	6
Equipment & Parts	9	8
Animal Science		
Animal Producer	1	2
Marketing	1	2
Processing	1	2
Livestock Inspection	1	1
Ornamental Horticulture		
Floral	3	3
Nursery	7	7
Landscape Contracting	4	4
Grounds Maintenance	6	6
Landscape Architecture	3	2
Natural Resources		
Soils	4	5
Forestry	1	2
Inspection	2	1
Recreation	1	0
Plant Production		
Agronomy	8	8
Irrigation	12	13
Tree Crops	7	8
Processing	6	7
Vegetables	5	7
Viticulture	8	9
Enology	5	5

GENERAL COMMENTS:

Let's get back to basics. We need skilled and teachable people. You should provide the foundation and we can complete the training. Good trade schools--this is the need.

Courses which teach good organization and functional business. Also interpersonal relations. F.F.A. good for leadership.

Agriculture Speaker Bureau resource people willing to come to your classes to speak on specific topics.

I will even pay my employees to attend courses.

Young people could find more summer time employment if they had practical training and were able to handle some responsibilities. Training in field situations and safety training are important.

Perhaps some type of "Certificate" could be given to a student showing he has reached a certain level of learning or accomplishment. It is important that this certificate carries some weight--that is to say that it really means something and is not just a handout.

We feel that Bakersfield needs an agricultural mechanics program to complete the total curriculum.

Ability to communicate in Spanish is a critical feature in today's agriculture.

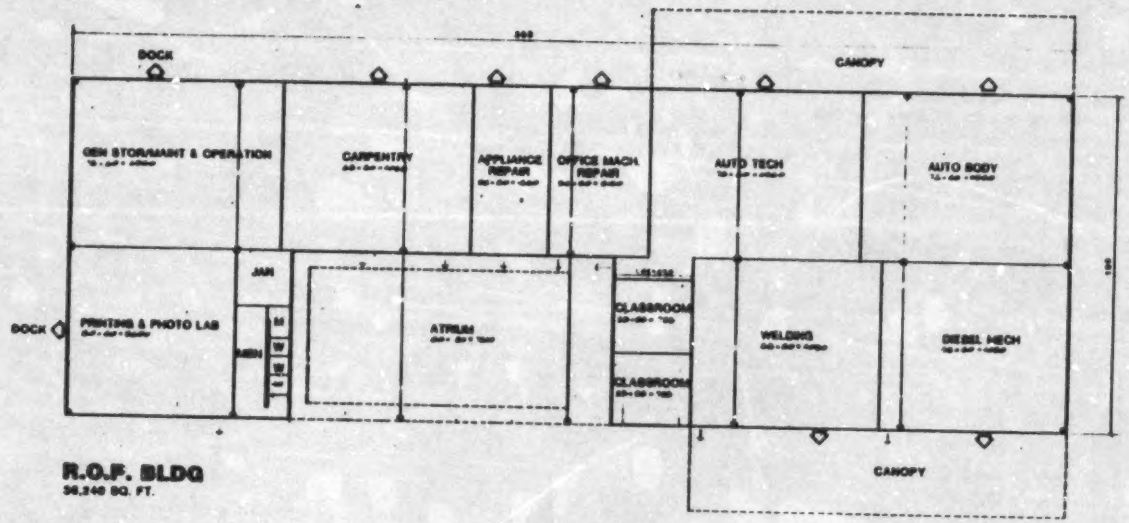
Emphasize the fact that there is an apprentice commitment after you receive your degree before you become a profitable employee.

Most of our employees are truck drivers. The only training they need is on how to handle and load livestock onto the trucks.

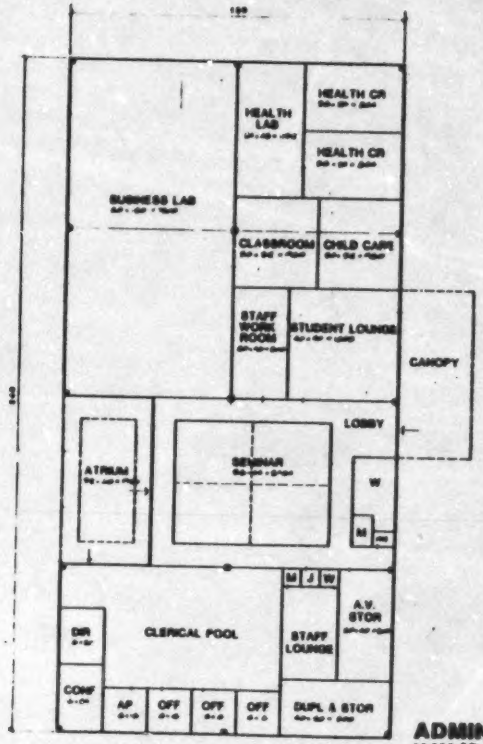
Our knowledge of what is offered on the high school level is quite limited; however, we feel that there is not enough emphasis placed on the field of vocational education by the current administrations of both the high schools and the community college. We realize that vocational education is not an inexpensive educational process; however neither is the option of having a future society of people who are not equipped with any skills with which to help better our society. We would strongly suggest that the current administrations take a detailed look at the budgets and then channel the necessary funds into those areas which are going to help equip students with a "saleable" skill.

It is suggested that these courses be tailored to the majority rather than the exceptions. Many students may not have the opportunities to further their education. It is suggested they be given a good base to fit into Kern's agriculture.

APPENDIX F

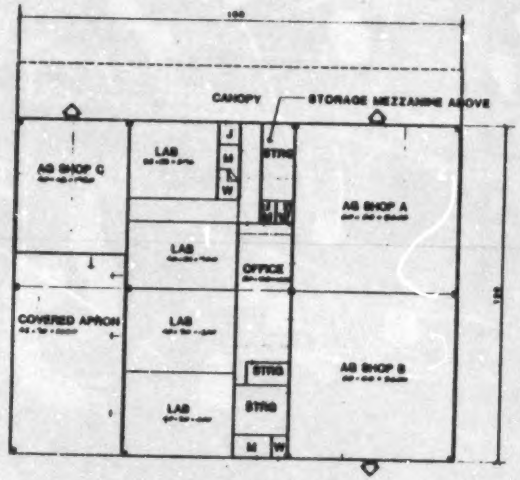


R.O.F. BLDG
36,240 SQ. FT.



ADMIN/CR BLDG
20,880 SQ. FT.

ROAC



AG SHOP BLDG
16,320 SQ. FT. FIRST FLOOR
1,440 SQ. FT. MEZZANINE
17,760 SQ. FT. TOTAL

SCHEMATIC FLOOR PLAN

A

biggc biggar frapwell ghezzi cartnal

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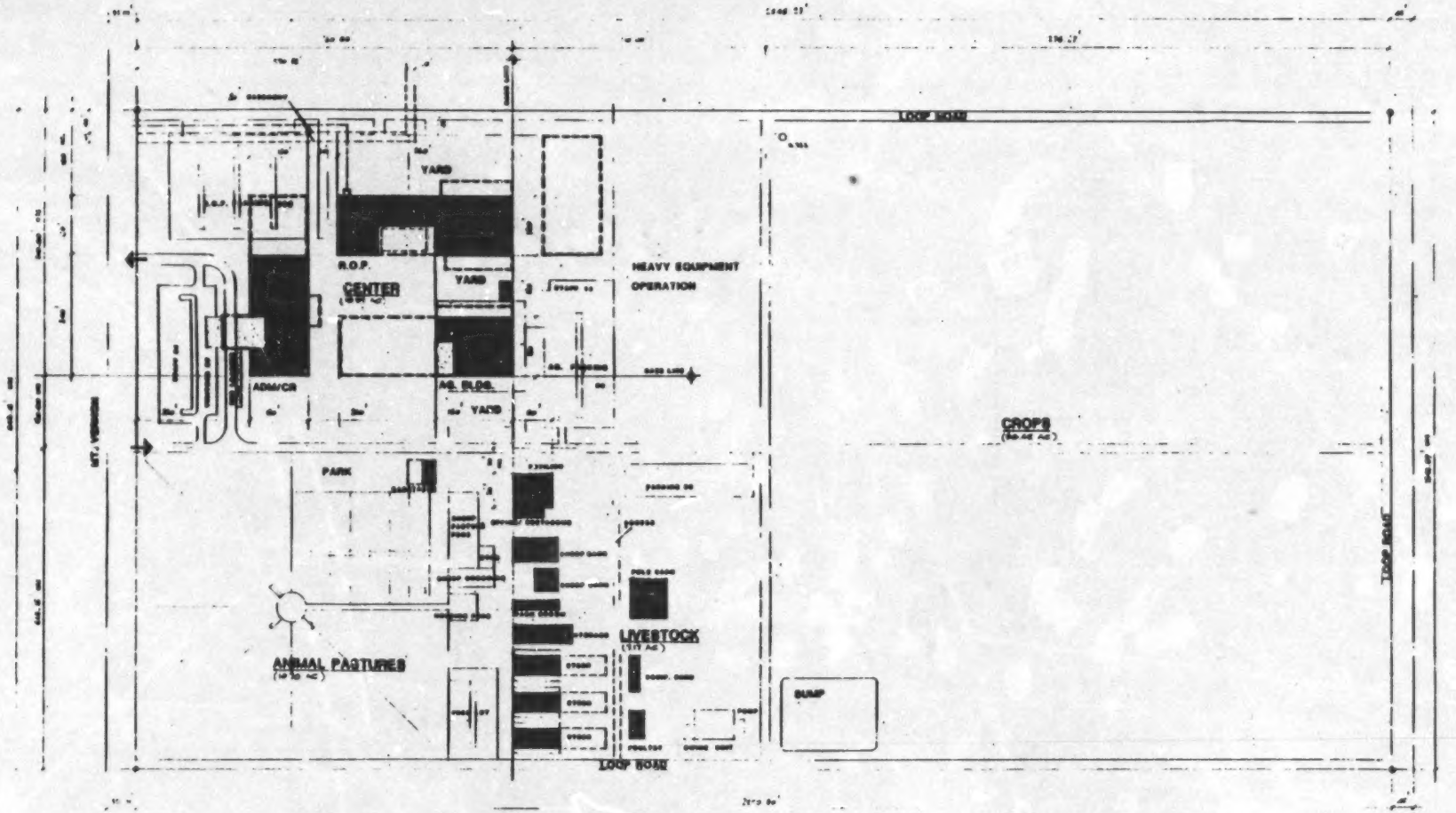

ROAC

N

SCHEMATIC SITE PLAN

A

ERIC Clearinghouse for Junior Colleges
AUG 2 1985

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big C biggar frapwell ghezzi cartnal